AMENDMENTS TO THE CLAIMS

1. (Currently amended) A microphone preamplifier, comprising:

a semiconductor substrate;

a differential amplifier integrated on the semiconductor substrate having an input stage with ~~a first signal~~ an inverting input terminal and a ~~second signal~~ non-inverting input terminal and an output stage with an output terminal wherein ~~a~~ an audio frequency input signal from a microphone is to be applied to the ~~second signal~~ non-inverting input terminal;

a feedback circuit also integrated on the semiconductor substrate comprising an active device which provides an ohmic impedance across a two-port circuit having a low-pass frequency transfer function that couples a part of the input signal from the output terminal back to the ~~first signal~~ inverting input terminal; and

a DC offset implemented in at least one of at the input stage, in the input stage, or in the feedback circuit to set the DC bias voltage at the output terminal.

2. (Canceled)

3. (Previously presented) A microphone preamplifier according to claim 1, wherein the feedback circuit is a filter with a transfer function, in the frequency domain, with a zero and a pole; wherein the zero is located at a higher frequency than the pole.

4. (Previously presented) A microphone preamplifier according to claim 1, wherein the preamplifier has a transfer function, in the frequency domain, with a zero and a pole; wherein the pole is located in the range 0.1Hz to 50 Hz or 0.1Hz to 100Hz or 0.1 to 200Hz.

5. (Previously presented) A microphone preamplifier according to claim 1, wherein the feedback circuit is a filter which, in the frequency domain, has a relatively high gain level below a transition frequency range and a relatively low gain level above the transition frequency range.

6. (Original) A microphone preamplifier according to claim 5, wherein the transition frequency range is located below a frequency of about 100 Hz.

7. (Original) A microphone preamplifier according to claim 5, wherein the transition frequency range is located below a frequency of 40 Hz.

8. (Previously presented) A microphone preamplifier according to claim 1, wherein the feedback circuit is an active filter.

9. (Previously presented) A microphone preamplifier according to claim 1, wherein the feedback circuit is a passive filter.

10. (Canceled)

11. (Previously presented) A microphone preamplifier according to claim 1, wherein the feedback circuit comprises a configuration with a first and a second active device and a current source, where the devices comprise a respective gate terminal, a source terminal and a drain terminal, and where the gate terminals are interconnected at a node connected to the current source and the drain terminal of the first device, and where the source terminals are interconnected, to provide the second device in a state where an ohmic resistance is provided between its drain and source terminal.

12. (Previously presented) A microphone preamplifier according to claim 1, wherein the feedback circuit comprises a filter with an input port connected to a series connection of a first and second resistor which forms a resistor node at their interconnection, and connected to a series connection of a first and second capacitor which forms a capacitor node at their interconnection; and an output port at the capacitor node; wherein the resistor node and capacitor node are interconnected by an active device which provides an ohmic impedance across a two-port circuit.

13. (Previously presented) A microphone preamplifier according to claim 1, wherein the feedback circuit comprises a source providing a DC offset.

14. (Previously presented) A microphone preamplifier according to claim 1, wherein the feedback circuit comprises a filter with a source that provides a DC offset.

15. (Currently amended) A microphone preamplifier according to claim 1, wherein the DC offset is provided at the ~~first signal~~ inverting input terminal by a circuit configuration comprising a current source coupled, at the circuit node of the ~~first signal~~ inverting input terminal a resistor, a diode, or an active device which provides an ohmic impedance across a two-port circuit.

16. (Original) A microphone preamplifier according to claim 15, wherein the active device constitutes a second device in a configuration with a first and the second active device and a current source, where the devices comprise a respective gate terminal, a source terminal and a drain terminal, and where the gate terminals are interconnected at a node connected to the current source and the drain terminal of the first device, and where the source terminals are interconnected, to provide the second device in a state where an ohmic resistance is provided between its drain and source terminal.

17. (Previously presented) A microphone preamplifier according to claim 1, wherein the input stage comprises a first and second current path for the respective signal inputs, and wherein a DC offset is provided by establishing different DC currents through the first and second current path of the input stage.

18. (Currently amended) A microphone preamplifier ~~according to claim 1,~~ comprising:

a semiconductor substrate;

a differential amplifier integrated on the semiconductor substrate having an input stage with a first signal input terminal and a second signal input terminal and an output stage with an

output terminal wherein an audio frequency input signal from a microphone is to be applied to the second signal input terminal;

a feedback circuit also integrated on the semiconductor substrate comprising an active device which provides an ohmic impedance across a two-port circuit having a low-pass frequency transfer function that couples a part of the input signal from the output terminal back to the first signal input terminal; and

a DC offset implemented in at least one of at the input stage, in the input stage, or in the feedback circuit to set the DC bias voltage at the output terminal,

wherein the preamplifier is configured to receive the microphone signal via an input bias element which has relatively high ohmic impedance when the microphone signal is relatively small in magnitude and relatively low ohmic impedance when the microphone signal is relatively high in magnitude.

19. (Original) A microphone preamplifier according to claim 18, wherein the bias element is configured by two cross-coupled diodes.

20. (Original) A microphone preamplifier according to claim 18, wherein the bias element is configured by two cross-coupled bipolar transistors.

21. (Original) A microphone preamplifier according to claim 18, wherein the bias element is configured by two cross-coupled Metal Oxide Semiconductor, MOS, devices.

22. (Currently amended) A microphone preamplifier according to claim 1, wherein the ~~preamplifier is a~~ the differential amplifier ~~which~~ is configured to convert an input signal into a common mode signal for low frequencies and into a differential signal for audio frequencies.

23. (Currently amended) A microphone preamplifier according to claim 1, wherein ~~a~~ the differential amplifier is configured as an instrumentation type amplifier with two inputs and a first and a second output, wherein the first and second input is arranged to receive a microphone signal,

but wherein the inputs are coupled to receive the microphone signals substantially in phase at relatively low frequencies and substantially out of phase at relatively high frequencies.

24. (Currently amended) A microphone preamplifier according to claim 1, wherein ~~a~~ the differential amplifier is configured to provide frequencies below an audio band as common mode signals and audio band signals as differential mode signals.

25 . (Currently Amended) A microphone preamplifier according to claim 1, wherein a phase shifter is coupled between the inputs of the differential amplifier.

26. (Previously presented) A microphone preamplifier according to claim 1, wherein a phase shifter is cross coupled between an output of one side of the differential amplifier and an input of the opposite side of the differential amplifier.

27. (Previously presented) A microphone preamplifier according to claim 21, wherein a phase shifter is coupled between a signal node, substantially in phase with an input signal to the amplifier, and an input terminal of an opposite side of the differential amplifier.

28. (Currently amended) A microphone preamplifier according to claim 1, further comprising a voltage pump integrated on the semiconductor substrate.

29. (Currently amended) A microphone module comprising the microphone preamplifier according to claim 1, ~~comprising an~~ and further comprising an electret microphone configured to provide a microphone signal, responsive to a sound pressure on the electret microphone, to the microphone preamplifier.

30. (Currently Amended) A microphone module comprising the microphone preamplifier according to claim 1, ~~wherein the~~ and further comprising an electret microphone ~~is~~

mounted inside a space formed by a cartridge, and wherein the microphone preamplifier is integrated within the microphone module.

31. (Currently Amended) A microphone preamplifier according to claim 1, and further comprising a MEMS microphone member to provide a microphone signal, responsive to a sound pressure on the MEMS microphone, to the microphone preamplifier.

32. (Previously Presented) A microphone preamplifier according to claim 31, wherein the MEMS microphone member and the microphone preamplifier are integrated on a semiconductor substrate.

33. (Currently Amended) The microphone preamplifier as claimed in claim 1 wherein said differential amplifier has a high pass frequency transfer function and said feedback circuit has a low-pass frequency transfer function that reduces the low frequency output of the preamplifier .

34. (Previously Presented) A microphone preamplifier according to claim 1, wherein the DC offset is implemented by a combination of DC offsets selected from a group of at the input stage, in the input stage and in the feedback circuit.

35. (New) A microphone preamplifier according to claim 18, wherein the input stage comprises an inverting input and a non-inverting input, wherein the non-inverting input is the second signal input terminal and is to receive the microphone signal, and the inverting input is the first signal input terminal and is to receive a feedback signal provided by the feed-back circuit.

36. (New) A microphone preamplifier according to claim 18, wherein the feedback circuit is a filter with a transfer function, in the frequency domain, with a zero and a pole; wherein the zero is located at a higher frequency than the pole.

37. (New) A microphone preamplifier according to claim 18, wherein the preamplifier has a transfer function, in the frequency domain, with a zero and a pole; wherein the pole is located in the range 0.1Hz to 50 Hz or 0.1Hz to 100Hz or 0.1 to 200Hz.

38. (New) A microphone preamplifier according to claim 18, wherein the feedback circuit is a filter which, in the frequency domain, has a relatively high gain level below a transition frequency range and a relatively low gain level above the transition frequency range.

39. (New) A microphone preamplifier according to claim 18, wherein the transition frequency range is located below a frequency of about 100 Hz.

40. (New) A microphone preamplifier according to claim 18, wherein the transition frequency range is located below a frequency of 40 Hz.

41. (New) A microphone preamplifier according to claim 18, wherein the feedback circuit is an active filter.

42. (New) A microphone preamplifier according to claim 18, wherein the feedback circuit is a passive filter.

43. (New) A microphone preamplifier according to claim 18, wherein the feedback circuit comprises a configuration with a first and a second active device and a current source, where the devices comprise a respective gate terminal, a source terminal and a drain terminal, and where the gate terminals are interconnected at a node connected to the current source and the drain terminal of the first device, and where the source terminals are interconnected, to provide the second device in a state where an ohmic resistance is provided between its drain and source terminals.

44. (New) A microphone preamplifier according to claim 18, wherein the feedback circuit comprises a filter with an input port connected to a series connection of a first and second

resistor which forms a resistor node at their interconnection, and connected to a series connection of a first and second capacitor which forms a capacitor node at their interconnection; and an output port at the capacitor node; wherein the resistor node and capacitor node are interconnected by an active device which provides an ohmic impedance across a two-port circuit.

45. (New) A microphone preamplifier according to claim 18, wherein the feedback circuit comprises a source providing a DC offset.

46. (New) A microphone preamplifier according to claim 18, wherein the feedback circuit comprises a filter with a source that provides a DC offset.

47. (New) A microphone preamplifier according to claim 18, wherein the DC offset is provided at the first signal input terminal by a circuit configuration comprising a current source coupled, at the circuit node of the first signal input terminal a resistor, a diode, or an active device which provides an ohmic impedance across a two-port circuit.

48. (New) A microphone preamplifier according to claim 47, wherein the active device constitutes a second device in a configuration with a first and the second active device and a current source, where the devices comprise a respective gate terminal, a source terminal and a drain terminal, and where the gate terminals are interconnected at a node connected to the current source and the drain terminal of the first device, and where the source terminals are interconnected, to provide the second device in a state where an ohmic resistance is provided between its drain and source terminals.

49. (New) A microphone preamplifier according to claim 18, wherein the input stage comprises a first and second current path for the respective signal inputs, and wherein a DC offset is provided by establishing different DC currents through the first and second current path of the input stage.

50. (New) A microphone preamplifier according to claim 1, wherein the differential amplifier is configured to convert an input signal into a common mode signal for low frequencies and into a differential signal for audio frequencies.

51. (New) A microphone preamplifier according to claim 18, wherein the differential amplifier is configured as an instrumentation type amplifier with two inputs and a first and a second output, wherein the first and second input is arranged to receive a microphone signal, but wherein the inputs are coupled to receive the microphone signals substantially in phase at relatively low frequencies and substantially out of phase at relatively high frequencies.

52. (New) A microphone preamplifier according to claim 18, wherein the differential amplifier is configured to provide frequencies below an audio band as common mode signals and audio band signals as differential mode signals.

53. (New) A microphone preamplifier according to claim 18, and further comprising a phase shifter coupled between inputs of the differential amplifier.

54. (New) A microphone preamplifier according to claim 1, and further comprising a phase shifter cross coupled between an output of one side of the differential amplifier and an input of the opposite side of the differential amplifier.

55. (New) A microphone preamplifier according to claim 18, and further comprising a voltage pump integrated on the semiconductor substrate.

56. (New) A microphone module comprising the microphone preamplifier according to claim 18, and further comprising an electret microphone configured to provide a microphone signal, responsive to a sound pressure on the electret microphone, to the microphone preamplifier.

57. (New) A microphone module comprising the microphone preamplifier aaccording to claim 18, and further comprising an electret microphone mounted inside a space formed by a cartridge, and wherein the microphone preamplifier is integrated within the microphone module.

58. (New) A microphone preamplifier according to claim 18, and further comprising a MEMS microphone member to provide a microphone signal, responsive to a sound pressure on the MEMS microphone, to the microphone preamplifier.

59. (New) A microphone preamplifier according to claim 58, wherein the MEMS microphone member and the microphone preamplifier are integrated on a semiconductor substrate.

60. (New) The microphone preamplifier as claimed in claim 18 wherein said differential amplifier has a high pass frequency transfer function and said feedback circuit a low-pass frequency transfer function that reduces the low frequency output of the preamplifier .

61. (New) A microphone preamplifier according to claim 18, wherein the DC offset is implemented by a combination of DC offsets selected from a group of at the input stage, in the input stage and in the feedback circuit.